influence is unattended with any unpleasant effects upon the circulatory system, though its action on the brain and nerves is certainly not such as always to be desired. When used in greater moderation than in these experiments, this influence would, doubtless, be greatly lessened.

I refrain from entering into the discussion of the other physiological points connected with the foregoing experiments. A simple examination of the tables will show that these are many and of great interest, and that it is not only as exhibiting the actions of alcohol and tobacco upon the system that the investigations detailed in this paper are valuable; neither have I the time to discuss farther the immediate subjects of inquiry.

To that earnest band of physiologists who are constantly investigating the operations of nature, and who rely more upon actual observations than upon abstract theories, I submit these experiments. Though the deductions I have drawn from them may not stand before the progress of physiological research, the materials collected will, I am confident, never entirely lose their value.

Fort Riley, *Kansas Territory*, August, 1856.

Art. II.—*Thoughts on Acclimation and Adaptation of Races to Climates.* By J. C. Nott, M. D., Mobile, Ala.

The following desultory remarks have been elicited by a perusal of the work of Dr. R. La Roche on *Yellow Fever*. It would be a work of supererogation in me at this late day to say anything in praise of this standard work, which has already taken its position in the classic literature of our profession; nor need I allude to the kind and gentlemanly tone which pervades it throughout. But there are a few points in these volumes on which I differ from the author; and, as they involve not only curious speculations but questions of deep practical importance, I will take the liberty of presenting certain facts and opinions of my own which are the result of thirty years' observation in southern climates. In so doing, my object is not controversy, but simply a desire to aid in developing the true history of southern diseases, which at this moment are so profoundly interesting to the people of the United States, north as well as south.

Although there are other opinions of Dr. La Roche with which I shall incidentally come into collision, the following paragraph is the only one to which I shall directly allude, as it expresses his opinions on the leading point which I desire to illustrate, viz: that of *acclimation*, or, to be more precise, the influence of southern climates on natives of the north. In vol. ii. p. 20, he says:—

"In a word, habit seems to possess the power of modifying the system to so great an extent and so permanent a degree as to justify those who hold it in

the light of a second nature. In virtue of the influence it exercises, and the peculiar organic changes resulting from long exposure to the sensible and insensible qualities of the atmosphere, or to the extraneous materials by which that atmosphere may be contaminated, man enjoys the faculty to which I have alluded, of living under climatic influences of the most diversified characters. He resists the inclemencies of the elements, the insalubrity of the seasons, the extremes of temperature, as well as the action of malarial and other exhalations. With time, the native of the North acquires the privilege of supporting *with impunity* the scorching rays of a tropical sun, though the result is not obtained without inconvenience, suffering, and even danger, and without, in the greater number of instances, subjecting the individual to the ordeal of disease. Not so easy is it to become habituated to the baneful action of those modifiers—such as malarial exhalations—which exercise their agency on the principle of vitality. *But even here immunity is obtained*, either gradually and insensibly, without shock to the system, or more suddenly through the effect of an attack of fever. But whatever be the means by which the process is effected, that such protection is thus obtained, to a greater or less extent, in regard to *all malarial* and some other forms of fever, no one who has examined the subject with attention will feel disposed to deny. By long habituation to infectious localities and to the high temperature of hot regions, the system becomes acclimatized, and thereby acquires the power of *tolerating perfectly and permanently the poison*, or of eliminating it as soon as received, without succeeding reaction. The observation is of old standing. Pliny, nearly twenty centuries ago, called attention to the fact 'that they who are seasoned can live amid pestilential diseases;' and the statement has been confirmed by all subsequent observations. The immunity is more or less perfect according to the individual peculiarities of those exposed to the cause, and to the salubrity of the country whence they come; and is enjoyed at all future time, except when, from the concurrence of particular circumstances, the poison acquires unusual deleterious properties," &c. &c.

The doctor goes on to substantiate these opinions by references to Monfalcon, Lancisi, Pinkard, Sir Gilbert Blane, and other authorities of high repute.

I have given the above long quotation in order that Dr. La Roche might be fairly heard. The language to me is somewhat obscure, and, for fear of doing injustice, I shall simply give my own ideas, without attempting to define clearly the limits which he intends to set to the influence of *acclimation*.[1]

Dr. Rochoux has attempted a somewhat more precise definition of the term *acclimation*, and perhaps a better one cannot be given in the present state of knowledge. He says: "Acclimation is a profound change in the organism, produced by a prolonged sojourn in a place whose climate is widely different from that to which one is accustomed, and which has the effect of rendering the individual who has been subjected to it similar in many respects to the natives (*indigènes*) of the country which he has adopted."

This definition strikes at once a leading difficulty in this discussion, and one which should, as far as possible, be cleared away, before we attempt to estimate the influence of climate on mankind. Who are these "*indigènes*"

[1] Dr. La Roche prefers the word *acclimatization*. I prefer the common term, as it is adopted by Webster, by French writers, and it is shorter.

of whom Rochoux speaks? Are they, in all cases, really descendants of the same original stock as those who come to seek acclimation? Here, I repeat, are questions which have not been fully and fairly examined, even by Prichard, the great champion of the unity of the human race, and which embarrass our progress at every step.

My own opinions on the *original diversity of the races of men* have been long before the public, and need not be repeated here; nor, perhaps, does a practical view of the subject before us demand the reopening of that long mooted question, because recent discoveries have demonstrated that those well-marked races which are now scattered over the face of the earth have (unless where deteriorated by disease), with slight modification, preserved the same physical characteristics which marked them several thousand years ago. And if this *permanency of type* be, as it now universally is among naturalists, admitted, we have no reason to expect that climate will produce changes in races during the next thousand years which it has not been potent enough to effect in all recorded time of the past.

Moses, we are told, "was learned in all the wisdom of the Egyptians;" and, long before even his day, we know positively, through the researches of Lepsius, Champollion, Rosellini, and others, that the Egyptians had classed the races of men into the white, red, black, and yellow, each class representing a *group of races of kindred types.*

No one who has investigated the subject, will deny the antiquity of Egypt, China, and India, each of which existed as empires more than 2000 years before Christ, with populations presenting widely different physical characters, and speaking languages radically distinct from each other. Moreover, in Egypt, besides the millions of mummies which have been found in the catacombs of Thebes and Memphis, we see depicted on her time-worn monuments, authentic delineations of nearly all the races that the traveller now meets in his journey around the greater part of the Mediterranean. We there behold the portraits of Egyptians, Assyrians, Nubians, Abyssinians, Jews, Negroes, Tartars, Arabs, Berbers, &c.; and all, according to Lepsius, Bunsen, Birch, De Rougé, and other leading authorities, dating back at least 2300 years before the Christian era. Nor is evidence wanting to prove that Celts, Slaves, Teutons, Finns, Iberians, Pelasgians, and other types, inhabited Europe before the epoch of Moses. We might even go further, and produce evidence to show that America, Australia, and Oceanica had their *indigènes*, when Abraham and Sarah went to buy corn of the Pharaoh who then presided over the Egyptian empire.

We repeat, then, that the above races all existed, in their full developed types, 5000 years ago—that no known causes have ever transformed one race into another—and that nothing but amalgamation, or morbific causes, have ever greatly changed the physical characters of a race. So far we are sustained by facts; and *science* has nothing to do with the age of miracles beyond the starting point of my researches. The true origin of genera and species

has proved a never-ending dispute among naturalists, and from the very nature of the case must ever remain so without a new revelation from the Creator.

The *antiquity* of the various types of man being conceded, let us next view them in connection with the other organized beings of our planet.

Naturalists teach, that while the surface of the earth presents an infinite variety of climates which influence animal and vegetable life, it may at the same time be divided into realms or regions, presenting totally distinct Faunæ and Floræ. These regions, which have been called *Zoological Provinces*, run so insensibly into each other as not to admit of precise boundaries, but each possesses an infinite variety of animals and plants that are peculiar to it, and which it is believed were there created. Prof. Agassiz, without pretending, in the present imperfect state of facts, to minute accuracy, has mapped off the earth into eight of these provinces, each of which contains not only peculiar animals and plants, but a *group* of human beings which seems to form an original element in the local creation, and to be *adapted by nature to surrounding climatic influences.* The following is the division of Prof. Agassiz: The *Arctic*, the *Asiatic*, the *European*, the *American*, the *African*, the *Malayan*, the *Australian*, and the *Polynesian Realms.* Now each of these realms has been shown to contain animals and plants that are found nowhere else, and also a group of human beings of peculiar type, which date back beyond human records, and which seem to be in perfect harmony with surrounding circumstances.

This is not the place to enlarge upon such a well-known law of natural history, and it may be sufficiently illustrated for the medical student, by a statement of the fact, that south of the arctic, at which the continents nearly touch, there is not an animal or plant that is common to the Old and New World. Every living thing (with *perhaps* a few rare exceptions) found in America at the time of the conquest, was here created.

Now, that the races of men, found in these respective realms, obey the same law of local creation as other organized beings, no doubt will be stoutly denied; but, leaving this point out of view, it will be admitted that these races have for ages been in harmony with the positions in which they are found, and cannot be removed to other zones without doing violence to their natures.

The animals and plants of different latitudes differ greatly in pliability of constitution, and are variously affected by changes. Those of the arctic and the tropic are each reared in extremes—are habituated either to very high or very low temperature, and cannot be transported far beyond their native climes, without injurious consequences. Hence, when the human beings or animals of the arctic or tropic are left to themselves, they rarely migrate much beyond the limits of their respective zones. Not so with the inhabitants of the middle temperate latitudes. Here the animals and plants are subject to cold winters and hot summers, and possess a pliability of nature which enables them to stand a wide geographical range. The races of men here are found

to obey the same law, and have been the great conquerors, colonizers, and civilizers of the world; but even these have paid dearly for their migratory propensities. Though placed at the head of the animal kingdom, man is still an animal, and subject to the same physical influences as others. He is enabled to change his climate with more facility than most animals, simply because he is enabled to devise means by which he can protect himself against extremes of temperature and other unaccustomed influences.

Cabanis has justly remarked: "*Si l'histoire naturelle a besoin d'une bonne géographie physique, la science de l'homme, a besoin d'une géographie médicale.*" Much has been done since his day in the former department, but little progress has been yet made in the right direction in medical geography.

Every one admits that the negro cannot be carried to the arctic, or the Esquimaux to the tropic, without destruction of life. It is equally true that the natives of Europe and those of Africa brought to the United States are differently affected by the climate, which is equally new to each. We may go much further, and assert that various races of Europe, Asia, and Africa are influenced in different degrees by change to any given climate; and yet the element of race has played but an insignificant part in the question of acclimation. Much might be said on the relation of race to climate, but I can here do little more than call attention to its importance; and the few remarks I shall make, will be confined to the influence of our southern climate on exotic population.

All of our Southern States, as well as the tropical part of America, were covered by aboriginal tribes at the time of the conquest, which were everywhere a robust and healthy people. These races still inhabit the sickliest parts of Florida with impunity, and I meet others every day in the streets of Mobile, who present a vigorous and healthful appearance, though their bark tents are pitched around the town on the borders of pestiferous marshes. All testimony goes to show that these races suffer comparatively little from the indigenous diseases of the country, while they are terribly scourged by imported diseases, such as cholera, measles, smallpox, &c. In a word, it would seem that no foreign race can be placed, not even the negro, in such perfect harmony with our climate, as the Indian.

Writers on the physical history of man—Blumenbach, Prichard, Cuvier, and others, have made arbitrary classifications of races, which may be convenient, but which have no foundation whatever in nature; for example, the most commonly received division of races is the following: Caucasian, Mongol, Malay, Indian, and Negro. Let us take up the first division, and ask why has such a heterogeneous mass been grouped under the head of *Caucasian?* Slavonians, Teutons, Celts, Iberians, Finns, Pelasgians, Jews, Gypsies, Egyptians, Arabs, Hindoos, &c. &c., have all been thrown together under one name, though resembling each other no more than do dogs, wolves, foxes, jackals, and hyenas. Medical men have, in like manner, whilst discussing the subject of

acclimation, thrown all these races together as amenable to the same physical laws, without stopping to inquire whether the principle be true or false.

All writers, in arguing this question, admit the broad division of *white* and *black races*, and although the study of climatic influences on the intermediate races may be attended with greater difficulties, it is none the less important.

The physicians of our southern seaports will not only tell you that negroes are much less susceptible to the influence of yellow fever poison than whites, but that the smallest infusion of negro blood into the white races diminishes their susceptibility. No facts can be better settled than these.

My own observation for twenty years in Mobile (where there is a very mixed population of Anglo-Saxons, French, Spaniards, Italians, Negroes, Mulattoes, Indians, &c.), has satisfied me thoroughly, that the susceptibility of Races to yellow fever is in direct ratio to the fairness of complexion. All the strictly white races are most susceptible; and in proportion as we descend through the dark-skinned descendants of the Iberian part of the population of France (Spaniards, Italians, Portuguese), the Mongols, Malays, &c., down to the negro, this susceptibility decreases. I know I shall be told, that these races are less susceptible because they are natives of warm climates; but my own conviction is that there is something in *Race* besides climate; and that the climate does not make the race, but that the race was originally made to suit the climate in which Nature placed it. The descendants of these dark-skinned races, born in Great Britain or in Germany, are less likely to suffer from yellow fever than the fair-skinned races; and we see the fact every year confirmed in Charleston, Mobile, and New Orleans, that negroes of the fourth, fifth, or even tenth generation in Virginia (where yellow fever does not prevail), enjoy almost perfect immunity against this disease. I have seen many hundred of these unacclimated negroes of Virginia exposed to yellow fever in Mobile; and until the memorable year of 1853, I never saw but two full-blooded negroes die of yellow fever. In the latter year more were attacked, but very few died. Negroes, too, possess a remarkable proneness to cholera, and to all forms of typhoid disease, typhoid fever, typhoid pneumonia, &c., as well as to the acute diseases of winter.

The statistics of Prussia show that Jews are much less liable to plica Polonica than the Slavonic, Teutonic, and other races of Europe; and we shall see further on that they are the only foreign population that can increase in Algeria.

But let us turn from this intricate problem of Races, and come down to the plain practical part of the discussion which lies within the reach of common observation. Let us inquire how far Dr. La Roche's ideas of acclimation are true, when applied "to *all forms* of malarial fever," and when he tells us that the native of the North, who comes to the South and inhabits "infectious localities," "*becomes acclimatized and thereby acquires the power of tolerating perfectly and permanently the poison.*"

Had the doctor lived at the South instead of the North he would have

come to very different conclusions. He would have learned that the Anglo-Saxon easily becomes acclimated against yellow fever of the cities, but never against the marsh malaria of the rural districts: nay more, that susceptibility here increases with time, and that this race in "infectious localities" would, in time, if left alone, become exterminated by this "poison." A capital error has therefore been committed in grouping together yellow fever and the various forms of malarial disease.

I may be permitted to repeat that my conclusions are the result of many years' observation at the South, and that my attention has been closely called to the subject of acclimation by long connection with life insurance companies.

Yellow fever is, *par excellence*, a disease of towns and crowded population, while intermittents and remittents belong to the country; and wherever a large town is built in a malarial district, intermittent fever and its allies are driven to the suburbs, in proportion as grading, paving, and buildings extend. Charleston, South Carolina, may be selected from many others, as a striking illustration. This city was built in the midst of an "infectious locality," where marsh fevers exist to a terrible extent, in all grades, and yet it has become the most healthy town of the South. Its bills of mortality, for the last thirty-five years, will show statistics that compare favourably with those of any other city; and here among the causes of death bilious fever plays but a feeble part. The original disease of the spot has been expelled; and for it are substituted, at long intervals, epidemics of yellow fever; while the diseases of the suburbs and surrounding country are unchanged. The inhabitant of the town is fully acclimated to *its* atmosphere, but cannot spend a single night in the country without serious risk of life; nor can the squalid liver-stricken countryman come into the city during the prevalence of yellow fever, without danger of dying with black vomit. A stronger proof of the non-identity of yellow and marsh fevers cannot be demanded.

There are many difficulties in this subject which it is not my purpose to touch, for two reasons: 1st, because it would extend this paper too far; and 2d, because we are greatly wanting in accurate observations on many of the forms of disease, and the topography of their localities, in different parts of the world. I am inclined to think that not only has yellow fever been improperly considered as a mere grade of marsh fever, and attributable to the same cause which produces intermittents; but, that it is very questionable whether all the other endemic fevers of hot climates are attributable to the same poison. There is reason, for example, to believe that the fevers of the coast of Africa are different from those of the United States, and that although they are quite as violent, or even more so to the unacclimated, than ours, yet the native Africans withstand them better than they do our marsh fevers. So with the fevers of Spain and Portugal, which, during the Peninsular war, created such havoc among the English troops, while the *natives* seemed fully acclimated against them. We know that the Italians and the Anglo-Saxons

never become accustomed to the endemics around them. I wish to illustrate more particularly the influence of the endemics of the Southern States on the Anglo-Saxon immigrants, and shall, therefore, not pursue this branch of the inquiry.

In treating the subject of *Acclimation*, two very distinct influences are to be considered: 1st, *Temperature;* 2d, *Malarial Exhalations.*

All writers on the diseases of hot climates inform us that, when the people of the North remove to hot climates, the system undergoes a great change from the heat alone. The robust, florid German or Anglo-Saxon in India, Jamaica, or in our Gulf States, perspires profusely, becomes attenuated, debilitated, tanned, and his whole external appearance and internal organism are greatly modified, independently of any malarial influence. This uncomplicated influence of heat may be well studied in our high healthy pine-lands of the South, at the Cape of Good Hope, and many places where intermittent or other malarial diseases do not prevail. Foreigners, in such localities, *do* undergo a positive acclimation. They, after a time, and particularly their descendants, become habituated to heat, and live in hot climates with a certain degree of comfort and health. There is ample reason to believe, however, that natives of the North never can become *perfectly* adapted even to high temperature, and that the duration of life is materially curtailed under such circumstances. The experience of the insurance companies of the United States seems of late to be confirming this view; and my own mind has long been made up to the belief that the Anglo-Saxon race positively deteriorates in hot climates under all circumstances. The population of the South nowhere presents the same vigour as that of Germany and Great Britain; and although they may not have attacks of fever, they are annoyed by many minor ills, which make them a physic-taking people, and curtail the average duration of life. Although Knox has pushed the idea to an extreme that I do not think warranted by facts, yet I do not believe that the climate even of our Northern States is so well adapted to the Anglo-Saxon stock as the temperate zone of Europe from which history derives them.

There is, then, a certain degree of acclimation to *temperature;* and it is equally true that persons so acclimated, and more especially their children, after having gone through this process, are less liable to *violent* attacks of our marsh fevers, when exposed to them, than the fresh immigrants from the North. The latter are more plethoric, their systems more inflammable, and although not more liable to be attacked by these endemics, they experience them, when attacked, in a more violent and more dangerous form. This fact holds good both with regard to remittent and yellow fever.[1]

[1] Dr. Boudin, in his "Lettres sur l'Algérie," after establishing the persistent influence of marsh malaria on French and English colonists, continues thus:—

"Reste à examiner l'influence exercée sur le chiffre des décès par le séjour dans les localités de l'Algérie, *non sujettes aux émanations paludéennes*, mais se distinguant

Leaving, then, the acclimation of temperature, let us come down to the main subject of our investigation, and inquire whether the white races can ever become acclimated against the influence of "malarial exhalations," or, in plain language, the morbific cause of intermittent fever. I recollect well the remark of my medical preceptor, thirty years ago, in South Carolina, that "Natives of the North, though subject to more inflammatory attacks, were *less liable* to intermittent and bilious fevers at the South, for the first year or two, than the natives who were born in malarial districts;" and my own observation leads me to the same conclusion.

The fact is so glaring and so universally admitted, that I am really at a loss how to select evidence to show that there is no acclimation against the endemic fevers of our rural districts. Is it not the constant theme of the population of the South how they can preserve health? and do not all prudent persons who can afford to do so remove in the summer to some salubrious locality in the pine lands or the mountains? Those of the tenth generation are just as solicitous on the subject as those of the first. Books written at the North talk much about acclimation at the South, but we here never hear it alluded to *out of the yellow fever cities.* On the contrary, we know that those who live from generation to generation in malarial districts become

de la France uniquement par une température élevée. A défaut de documents assez nombreux recueillis en Algérie même, nous invoquerons les faits relatifs à deux possessions anglaises ayant la plus grande analogie thermométrique avec notre possession africaine; nous voulons parler: 1°, du Cap de Bonne-Espérance; 2°, de Malte: l'un et l'autre proverbialement exemptés de l'élément paludéen.

"Au Cap de Bonne-Espérance, la mortalité de trois régiments anglais, de 1831 à 1836, a été représentée par les nombres suivants:—

En 1831	. . . . .	26 décès.
" 1832	. . . . .	26 "
" 1833	. . . . .	28 "
" 1834	. . . . .	28 "
" 1835	. . . . .	34 "
" 1836	. . . . .	33 "

"A Malte, où l'on peut considérer les hommes les plus jeunes comme les plus récemment arrivés d'Angleterre, la proportion des décès a suivi la marche ci-après.

Au-dessous de 18 ans	. . . .	10 décès sur 1000 hommes.
De 18 à 25	. . . . .	18.7 " "
" 25 à 33	. . . . .	23.6 " "
" 33 à 40	. . . . .	29.5 " "
" 40 à 50	. . . . .	34.4 " "

"En résumé, les analogies puisées, non seulement dans les localités paludéennes, mais encore dans les contrées non marécageuses, ayant une plus grande analogie climatologique avec l'Algérie, se montrent peu favorables à l'hypothèse de l'acclimatment."

He then goes on to give statistics both of the civil and military population of Algeria, which show still more deadly effects of climate.

thoroughly poisoned, and exhibit the thousand protean forms of disease which spring from this insidious poison.

I have been the examining physician to several life insurance companies for many years, and one of the questions now asked in many of the policies is, "*Is the party acclimated?*" If the subject lives in one of our southern seaports where yellow fever prevails, and has been born and reared there, or has had an attack of yellow fever, I answer, "*Yes.*" If, on the other hand, he lives in the country, I answer, "*No;*" because there *is no acclimation against intermittent and bilious fever, and other marsh diseases.* Now, I ask if there is an experienced and observing physician at the South who will answer differently? An attack of yellow fever does not protect against marsh fevers, nor *vice versâ.*

The acclimation of negroes, even, according to my observation, has been put in too strong a light. Being originally natives of hot climates, they require no acclimation to *temperature,* and are less liable to the more inflammatory forms of malarial fevers, and suffer infinitely less than whites from yellow fever; they never, however, as far as my observation extends, become proof against intermittents and their sequelæ. The cotton planters throughout the South will bear witness, that, wherever the whites are attacked with intermittents, the blacks are also susceptible, though not in so great a degree. My observations apply to the region of country removed from the rice country. We shall see further on that the negroes of the rice-field region do undergo a higher degree of acclimation than those of the hilly lands of the interior. I know many plantations in the interior of Alabama, South Carolina, Georgia, Mississippi, and Louisiana, on which negroes of the second and third generation continue to suffer from these malarial diseases, and where gangs of negroes do not increase.

Dr. Samuel Forry, in his valuable work on the climate of the United States, has investigated fully the influence of our southern climates on our population, and uses the following decided language in relation to the whites:—

"In these localities, as is often observed in the tide-water region of our Southern States, the human frame is weakly constituted, or imperfectly developed; the mortality among children is very great, and the mean duration of life is comparatively short. Along the frontiers of Florida and the southern borders of Georgia, as witnessed by the author, as well as in the low lands of the southern States generally, may be seen deplorable examples of the physical and perhaps mental deterioration induced by endemic influences. In earliest infancy the complexion becomes sallow, and the eye assumes a bilious tint; advancing towards the years of maturity, the growth is arrested, the limbs become attenuated, the viscera engorged, &c." (P. 365.)

But leaving our own country, let us look abroad and see what the history of other nations teaches.

The best authenticated examples, perhaps, anywhere to be found on record, of the enduring influence of marsh malaria on a race, are in the Campagna,

Maremma, Pontines, and other insalubrious localities in classic Italy. The following account is given by Dr. James Johnson, in his work on *Change of Air*, and every traveller through Italy can vouch for its fidelity:—

"It is from the Mountain of Viterbo that we have the first glimpse of the wide spread *Campagna di Roma*. The beautiful little lake of Vico lies under our feet, its sloping banks cultivated like a garden, but destitute of habitations, on account of the deadly malaria, which no culture can annihilate. From this spot till we reach the desert, the features of poverty and wretchedness in the inhabitants themselves, as well as in everything around them, grow rapidly more marked. We descend from Monti Rose upon the Campagna, and, at Baccano, we are in the midst of it."

After describing the beauty of the scenery and its luxuriant vegetation, he continues—

"But no human form meets the eye, except the gaunt figure of the herdsman, muffled up to the chin in his dark mantle, with his gun and his spear—his broad hat slouched over the ferocious and scowling countenance of a brigand! the buffalo which he guards is less repugnant than he! As for the shepherd, Arcadia forbid that I should attempt his description! The savage of the wigwam has health to recommend him. As we approach within ten miles of Rome, some specks of cultivation appear, and with them the dire effects of malaria on the human frame. Bloated bellies, distorted features, dark yellow complexions, livid eyes and lips; in short, all the symptoms of dropsy, jaundice and ague, united in their persons." "That this deleterious miasma did exist in the Campagna from the very first foundation of Rome down to the present moment, there can be little doubt."

He then goes on to prove the fact from the writings of Cicero, Livy, and others; and makes it clear that the population of Italy are no nearer being *acclimated* against this poison than they were two thousand years ago.

Sir James Johnson makes the following just remark, which applies equally to the malarious districts of our country:—

"A glance at the inhabitants of malarious countries or districts, must convince even the most superficial observer, that the range of disorders produced by the poison of malaria, is very extensive. The jaundiced complexion, the tumid abdomen, the stunted growth, the stupid countenance, the shortened life, attest that habitual exposure to malaria saps the energy of every mental and bodily function and drags its victims to an early grave. A moment's reflection must show us, that *fever* and *ague*, two of the most prominent features of malarious influence, are as a drop of water in the ocean, when compared with the other less obtrusive, but more dangerous maladies that silently, but effectually, disorganize the vital structures of the human fabric, under the operation of the deleterious and invisible poison."

"What are the consequences? Malarious fevers; or, if these are escaped, the foundation of chronic malarious disorders is laid in ample provision for future misery and suffering! These are not speculations, but facts. Compare the range of human existence, as founded on the decrement of human life in Italy and England. In Rome, a twenty-fifth part of the population pays the debt of Nature annually. In Naples, a twenty-eighth part dies. In London,

only one in forty; and in England, generally, only one in sixty falls before the scythe of time, or the ravages of disease."

As is the case with all of our southern seaports, "the suburbs of Rome are more exposed to malaria than the city; and the open squares and streets, than the narrow lanes in the centre of the metropolis." "The low crowded and abominably filthy quarter of the Jews on the banks of the Tiber, near the foot of the capital, probably owes its acknowledged freedom from the fatal malaria to its sheltered site and inconceivably dense population." This immunity may arise, at least in part, from their position at the *foot* of the hill; for there is no exception to the rule at the South, that a residence on the bank of a river, or in low land, is less affected by malaria than the hill that overlooks it. At present the fact is inexplicable, although universally admitted.

We will here add some interesting facts from the writings of the distinguished military physician, M. le Docteur Boudin, derived from personal observation during long residence in Algeria, and from official government documents.

"On the 31st of December, 1851, the indigenous city population (of Algeria) amounted to 105,865 inhabitants, of whom there were—

Mussulmans	81,329
Negroes	3,488
Jews	21,048

"If we compare this census with that of the year 1849, the following facts appear:—

"1. By a comparison of births and deaths in the official tables, the Mussulman population is decreasing.

"2. The negroes have decreased, in two years, 689.

"3. The Jews, during the same time, have increased 2,020.

"The mortality among the European population in Algeria, from 1842 to 1851, has varied from 44 to 105 out of every 1,000; and, instead of diminishing from year to year under acclimation, *the mortality has steadily increased.*

Mortality according to Nationality.

"Heretofore we have given the mortality of the European population taken in mass. It is understood that this mortality must be greatly influenced by the *origin* of the different elements of the population. We have shown that the half of the European population is composed of strangers (other than French), and numbers over 41,000 Spaniards, and 15,000 Italians and Maltese. The official tables give the following mortality from 1847 to 1851, for the French and strangers (Spaniards, Italians, and Maltese):—

	Deaths for each 1000.	
	Strangers.	French.
1847	48.4	50.8
1848	41.8	41.7
1849	84.3	101.5
1850	43.4	70.5
1851	39.3	64.5"

Thus, on the one side we see that the mortality of the French greatly exceeds that of the other European population; while on the other, in 1850 and

1851, the mortality of the former rises to a figure three times greater than the normal mortality of France.

Jewish Population.

The official tables give the following *résumé* of the mortality of the Jewish population, during the years from 1844 to 1849:—

1844	21.6 deaths per	1,000.
1845	36.1 "	"
1847	31.5 "	"
1848	23.4 "	"
1849	56.9 "	"

This mortality is greatly below that of both the European and Mussulman population, and shows the difference of acclimation in Jews and Frenchmen: "Nulle part le Juif ne nait, ne vit, ne meurt comme les autres hommes au milieu desquels il habite. C'est là un point d'anthropologie comparée que nous avons mis hors de contestation dans plusieurs publications."

" According to the last tables of the French establishments in Algeria, the total number of births from 1830 to 1851, have been 44,900, and that of the deaths 62,768" !!! This fact applies to all the provinces, and shows that the climate tends to the extermination of Europeans.

The official statistics also show that the *Mussulman* (Moorish) population is steadily decreasing in the cities. Dr. Boudin asks: "Is this diminution the effect of want, or of demoralization? Is it to be explained by the cessation of unions between the native women and the Turkish soldiers? or finally, is it explained by that mysterious law in virtue of which inferior races seem destined to disappear through contact with superior races?"

Our space does not permit us to dilate on these interesting questions, but it would be an easy task to show that races are adapted to certain climates; and that the mingling of different stocks greatly influences the longevity of individuals, and the *longevity of races.*

As this subject of home acclimation is one of too much importance to be allowed to rest on the opinion of any one individual, I have taken the liberty of writing to several of my professional friends for the results of their observations in different localities and states. All the answers received confirm fully my assertion that the Anglo-Saxon race never can be acclimated against marsh malaria. I should remark that the following letters were written with the haste of private correspondence, and not with the idea of publication. The first letter is from Dr. Dickson, the distinguished Professor of Practice in the Charleston Medical College.

CHARLESTON, May 16, 1856.

MY DEAR DOCTOR: I hasten to reply to yours of the 9th inst., received by yesterday's mail.

1. "The Anglo-Saxon race can never become acclimated against the impression of intermittent and bilious fevers," "periodical," or "malarious fevers." On the contrary, the people living in our low country grow more liable to attack year after year and generation after generation.

We get rid of the poison in some places, and thus extend our limits of residence, but in no other way. Drainage, the formation of an artificial surface on the ground, and other incidents of density of population, such as culinary fires, railroad smokes, and the like, aid to prevent the formation of malaria, or correct it.

Boudin (*British and Foreign Rev.*, Oct. 1849) argues against the possibility of such acclimation, dwelling upon the little success and great mortality attending the colonization of Algeria, the European and English intrusion into Egypt and into Hindostan.

The French, he tells us, cannot keep up their number in Corsica. In the West Indies, the white soldier is twice as likely to die as the black; in Sierra Leone sixteen times more likely, and this continues permanently.

In *Bryson's Reports on the Climate and Principal Diseases of the African Station*, it is affirmed (p. 33) that on board the Atholl (a vessel kept some time on the station) the cases of fever have recovered much more slowly than formerly; so that, instead of its being an advantage to be acclimated, it is apprehended that it will be quite the reverse, as the system becomes relaxed and debilitated by the enervating influence of the climate.

2. "Do *negroes* in this country (rice-field) ever lose their susceptibility to those diseases?" Yes, in very great measure, if not absolutely. If they remain in the same locality, they are scarcely subjects of attack. I use cautious language—too cautious. It is my full belief that they become *insusceptible* of the impression of the cause of periodical or what we call malarious fevers. Who ever saw a negro with an ague cake? I certainly never did. Change of residence begets a certain but very moderate degree of susceptibility. If a house negro be sent to a rice-field he may be attacked. So in shifting along the African coast from place to place, the natives of one locality will be seized by fever sometimes at another. Bryson tells us that Fernando Po is so terribly insalubrious that negroes brought from any part of the African continent are always sickly there, "though the natives of the island itself appear to be a healthy and athletic race of people."

The same author tells us of the general insusceptibility of the particular race called Kroo-men, all along the coast. This class of people are therefore very useful and available, being hired in preference to others on board the cruisers.

3. Negroes increase in number on our rice plantations—nay, it is my impression that the rate of increase is greater than on the less malarial cotton plantations. The majority of deaths that do occur happen in winter and from winter diseases, few dying of fever, none or almost none from bilious, intermittent, or remittents, some from typhus or typhoid, or "typhous" fevers.

* * * * * * *

I remain, &c. &c. &c.,

SAMUEL HENRY DICKSON.

There is an interesting fact in the above letter to me, as I have no experience in the rice-field country. I allude to the acclimation of negroes in these flat swamp-lands, and their increase. As far as my observation goes, the *hilly* rich clay lands of the interior are with few exceptions more liable to malarial fevers than the swamp-lands on the watercourses. The hills in the neighborhood of our swamp-lands are always more sickly than the residences which are *on the river banks*. Professor Dickson says the rice-field negroes increase more than those on the cotton plantations. Certainly,

negroes do suffer greatly on many cotton plantations in the middle belt of the southern States; and I have seen no evidence to prove that negroes can in this region become accustomed to the marsh poison, and my observation has been extensive in four States. A question here arises, is there any difference in types of those malarial fevers which originate in the flat tide-water rice-lands and those of the clay hills, or marsh fevers of the interior? I am inclined to think there is.

The following letter is from my friend Dr. Wm. M. Boling, of Montgomery, Alabama, who has had much experience in this region, and who is well known as one of our best medical writers.

MONTGOMERY, *Ala.*, May 17, 1856.

DEAR DOCTOR: Judging from my own observation, I am inclined to believe that there is no such thing as acclimation to miasmatic localities; in other words, that neither residence in a miasmatic locality nor an attack or even repeated attacks of any of the various shades or forms of miasmatic fevers confer any power of resistance to what we understand by the miasmatic poison—not regarding yellow fever, however, as belonging to this class of disease. On the contrary, one attack, it seems to me, instead of incurring an immunity from rather increases the tendency or predisposition to another. It would be no difficult matter, I think, to obtain histories of cases of persons born and continuing to live in miasmatic localities who have been subject to repeated attacks of miasmatic fevers occasionally during the entire course of their lives—say from a few days after birth to a moderate old age—"from the cradle to the grave." We do, to be sure, meet with persons who have resided for a considerable time in miasmatic localities without ever having had an attack of any of the forms of the fever in question. Such instances are more common, if I mistake not, among persons who have removed from a healthy into a miasmatic locality than among such as may have been born and reared in the latter. But it is a rare thing, indeed, according to my observation, to meet with a person residing in a place where miasmatic diseases are rife who has had *one attack and no more.*

Yours, &c. &c.,

WM. M. BOLING.

The identity or non-identity of yellow and marsh fevers has much to do with the subject of acclimation, but I must refer for my views on this subject to a paper of mine published some twelve months ago in the *New Orleans Medical News and Hospital Gazette.*

ART. III.—*Removal of the Entire Lower Jaw for Osteo-sarcoma.* By GEORGE C. BLACKMAN, M. D., Professor of Surgery in the Medical College of Ohio; Surgeon to the Commercial Hospital, Cincinnati, &c. &c. (With a wood-cut.)

MRS. V., æt. 60, corpulent, and of excellent general health, consulted me in May last in reference to an affection of the lower jaw, with which she had been troubled for about forty years. Its origin was attributed to an injury inflicted during the extraction of a decayed tooth on the right side. The